

WHAT IS CLAIMED IS:

1. A combustion chamber structure for an internal combustion engine comprising:

a piston (13), and

5 a cylinder head (14),

the combustion chamber being defined by a lower surface (14a) of an inner wall of the cylinder head (14) which confronts a cylinder bore (12a) and an upper surface of the piston (13) which slidably fits in the cylinder bore (12a), wherein

10 a predetermined gap ( $\alpha$ ,  $\beta$ ) is formed between the lower surface (14) of the inner wall of the cylinder head (14) and the upper surface of the piston (13),

a squish area (A2) is provided between a pair of valve recesses (13d, 13e) formed adjacent to each other on the upper  
15 surface of the piston (13) in a direction of an axis (L2) of a piston pin, and

the gap ( $\alpha$ ,  $\beta$ ) is formed such that the height thereof is higher at a circumferential center of the piston (13) than on circumferential sides thereof in the squish area (A2).

20 2. The combustion chamber structure for an internal combustion engine as set forth in Claim 1, wherein

the squish area (A2) is provided between the valve recesses (13d) for at least inlet valves (19).

3. A combustion chamber structure for an internal combustion chamber comprising:

a pair of inlet valves (19),

a pair of exhaust valves (21), and

5 a sparking plug (22) which are caused to face a pentroof-type combustion chamber (15) which is defined by a lower surface (14a) of an inner wall of a cylinder head (14) which confronts a cylinder bore (12a) and an upper surface of a piston (13) which slidably fits in the cylinder bore (12a),  
10 the sparking plug (22) being situated substantially at a central portion of the pentroof-type combustion chamber (15),

two first squish areas (A1) formed so as to connect valve recesses (13d) for the inlet valves (19) and valve recesses (13e) for the exhaust valves (21), respectively, and each  
15 containing a flat surface (13a) extending along an outer circumferential portion on the upper surface of the piston (13) in an arc-like fashion, and

two second squish areas (A2) formed between the valve recesses (13d) for the pair of inlet valves (19) and between  
20 the valve recesses (13e) for the pair of exhaust valves (21), respectively, and each containing a protruding portion which protrudes upwardly towards the lower surface (14a) of the inner wall of the cylinder head (14), wherein

the protruding portion of each of the second squish areas  
25 (A2) has;

a first ridge line (13b) extending from an outer circumferential portion of the piston (13) in such a manner as to be slanted up to an axis (L1) of the piston,

a second ridge line (13c) connected to an end portion  
5 of the first ridge line (13b) which is closer to the axis (L1) of the piston and extending in a circumferential direction about the axis (L1) of the piston,

a first slope (13f) extending from end portions of the two first squish areas (A1) in such a manner as to be slanted  
10 up to the first ridge line (13b), and

a second slope (13h) extending from the second ridge line (13c) in such a manner as to be slanted down to the axis (L1) of the piston.

15 4. The combustion chamber structure for an internal combustion engine as set forth in Claim 3, wherein

a gap ( $\alpha$ ,  $\beta$ ) between the lower surface (14a) of the inner wall of the cylinder head (14) and the upper surface of the piston (13) is set such that the gap ( $\alpha$ ,  $\beta$ ) becomes, in the  
20 second squish area (A2), larger at a portion thereof which faces the first ridge line (13b) and smaller on circumferential sides thereof which face the first squish areas (A1).